

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in this application:

1. (Withdrawn) A method of removing material from a vascular site, comprising the steps of:

providing a device having an expandable cage and a material removing element, the expandable cage being movable from a collapsed position to an expanded position, the expandable cage also has a plurality of openings therein when in the expanded shape, the openings being formed by rigidly connected elements;

advancing the device to a vascular site where material is to be removed;

expanding the expandable cage within the narrowed region of the blood vessel so that material extends through at least some of the openings; and

removing the material extending through the openings in the cage.

2. (Withdrawn) The method of claim 1, wherein:

the providing step is carried out with the expandable cage being naturally biased toward the expanded position; and

the advancing step is carried out with the expandable cage being held in the collapsed position.

3. (Withdrawn) The method of claim 2, wherein:

the advancing step is carried out with the expandable cage being contained within a sheath which holds the expandable element in the collapsed position.

4. (Withdrawn) The method of claim 1, wherein:
the providing step is carried out with the rigidly connected elements being integrally formed elements.
5. (Withdrawn) The method of claim 4, wherein:
the providing step is carried out with the integrally formed elements forming a smooth inner surface in the expanded position; and the removing step is carried out with a material removing element passing along the smooth inner surface.
6. (Withdrawn) The method of claim 1, wherein:
the providing step is carried out with the expandable cage having at least three openings.
7. (Withdrawn) The method of claim 1, wherein:
the providing step is carried out with the expandable cage having at least four openings.
8. (Withdrawn) The method of claim 1, wherein:
the providing step is carried out with the openings having a size of at least 0.25 mm² when expanded.
9. (Withdrawn) The method of claim 8, wherein:
the providing step is carried out with the openings each having a size of at least 0.50 mm² when expanded.

10. (Withdrawn) The method of claim 1, wherein:
the providing step is carried out with at least one of the openings having a length measured in a longitudinal direction of at least 0.020 inch.
11. (Withdrawn) The method of claim 10, wherein:
the providing step is carried out with at least one of the openings having a length measured in a longitudinal direction of at least 0.040 inch.
12. (Withdrawn) The method of claim 1, wherein:
the expanding step is carried out with the expandable cage being expanded within a stent.
13. (Withdrawn) The method of claim 1, wherein:
the removing step is carried out with a material removing element having a flexible bag attached thereto for trapping the material which has been removed.
14. (Withdrawn) The method of claim 1, further comprising the step of:
vibrating the cage during at least one of the vibrating and removing steps.
15. (Withdrawn) The method of claim 1, further comprising the step of:
releasing the cage; and
removing the device while leaving the cage within the patient.

16. (Currently amended) A device for removing material from a vessel wall at a vascular site, comprising:

a cage which is movable from a collapsed position to an expanded position, the cage having a plurality of openings in the expanded position, the openings being formed by rigidly connected elements, the cage being configured such that when the cage is in the expanded position at the vascular site material from the vessel wall extends from the vessel wall into the openings, the cage having an inner surface which defines a cavity, the cage being releasable so that the cage may be left within the patient; and

a material removing element positioned within the cage cavity to remove the material from the vessel wall extending into the openings when the cage is in the expanded position, the material removing element being positioned beneath the cage and being configured to be movable along the inner surface of the cage to remove the material extending into the openings.

Claims 17-27 (Canceled).

28. (Currently amended) A device for removing material from a vessel wall at a vascular site, comprising:

a sheath;

an expandable cage movable from a collapsed position to an expanded position, the cage forming a plurality of openings in the expanded position, the cage being configured such that when the cage is in the expanded position at the vascular site material from the vessel wall extends from the vessel wall into the openings, the expandable cage having an inner surface which defines a cavity, the expandable cage being contained within the sheath in the collapsed position so that the sheath holds the

cage in the collapsed position, the cage being releasable so that the cage may be left within the patient;

the sheath being retractable relative to the cage to expose the cage and permit the cage to expand; and

a material removing element positioned within the cage cavity to remove material from the vessel wall extending into the openings, the material removing element being positioned beneath the cage and being configured to be movable along the inner surface of the cage to remove the material extending into the openings.

29. (Original) The device of claim 28, wherein:

the cage has rigidly connected elements which form the openings, the rigidly connected elements being deformed when moved from the expanded position to the collapsed position.

30. (Original) The device of claim 28, wherein:

the rigidly connected elements are deformed within an elastic range when moving from the expanded position to the collapsed position.

31. (Original) The device of claim 28, further comprising:

a collapsible bag positioned to receive the material removed by the material removing element.

32. (Original) The device of claim 31, wherein:

the bag is coupled to the material removing element.

33. (Original) The device of claim 28, wherein:
the cage forms 2-10 openings.
34. (Original) The device of claim 28, wherein:
the openings have a length of at least 1 mm.
35. (Original) The device of claim 28, wherein:
the openings have a size of at least 0.5 mm.
36. (Withdrawn) A method of removing material from within a previously implanted stent, comprising the steps of:
providing a device having an expandable cage and a material removal element, the expandable cage being movable from a collapsed position to an expanded position, the expandable cage forming openings in the expanded position;
advancing the expandable cage to a position within a previously implanted stent;
expanding the cage toward the stent so that material within the stent extends into the openings of the expandable cage; and
removing material extending into the openings of the cage.

Claims 37-60 (Canceled).

61. (Withdrawn) A method for removing material from a vascular site, comprising the steps of:
providing a device having an expandable cage and a material removing element, the expandable cage being movable from a collapsed position to an expanded position and having a plurality of openings when in the expanded shape;

advancing the device to a vascular site where material is to be removed;
expanding the expandable cage within the narrowed region of the blood vessel so that material extends through at least some of the openings;
removing the material extending through the openings in the cage; and
vibrating at least one of the cage and cutting element during at least one of the expanding and removing steps.

62. (Withdrawn, currently amended) A method for removing material from a vascular site, comprising the steps of:

providing a device having an expandable cage and a material removing element, the expandable cage being movable from a collapsed position to an expanded position and having a plurality of openings when in the expanded shape;

advancing the device to a vascular site in a patient where material is to be removed;

expanding the expandable cage within the narrowed region of the blood vessel so that material extends through at least some of the openings;

removing the material extending through the openings in the cage; ~~and~~
releasing the cage; and

removing the device while leaving the cage within the patient.

63. (New) The device of claim 16, further comprising:

a collapsible bag positioned to receive the material removed by the material removing element.

64. (New) The device of claim 63, wherein:

the bag is coupled to the material removing element.